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This annotated bibliography of over 90 items reviews the literature, primarily books, that presents policy issues and interdisciplinary concepts. The listing is designed to provide the nonspecialist with a wide spectrum of views and opinions; some reflective of the physical sciences and technology, others of the economic, sociological, and political realities that dictate whether new technologies will or will not be used, whether innovative or restrictive policies will be imposed. Most items were published after 1970.

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Although opinion varies about the "crisis of the environment," its seriousness, its causes and its probable solutions, there is general agreement on the present urgency to bring into balance the exploitative demands on the Earth and the necessity of maintaining (or restoring) a stable and healthy ecosphere. This environmental concern has become an integral and persuasive factor in national and international affairs. Within the past five years, two Federal agencies—the Council on Environmental Quality and the Environmental Protection Agency—have been created to assess and administer environmental programs. Congress has legislated a decisive and wide-ranging body of environmental law; and most States have set up departments to deal with problems of the environment. The increasing international awareness of man's fragile ecological niche was signalled by the U.N. Conference on the Human Environment held in Stockholm in June 1972.

The latter was of historic importance for it marked the beginning of a transition in the attitudes toward the future uses of the environment. Despite ideological, political, economic and religious differences, the delegates of 114 nations agreed on an Action Plan and a Declaration of Principles based on the common realization that the Earth is a closed ecological system and that man continues to modify it only at his peril.

This perception is especially acute in a period of high technology when man's ability to intrude upon and divert the natural order presents a magnitude of change that is unprecedented. It is conjectured that the changes in man's interaction with his environment in the last 60 years are greater than all the changes that have occurred from the time of man's first arrival on the Earth to World War I. Further, some of the most serious ecological problems—air pollution from radioactive particles, the uncontrolled fouling of the oceans and waterways—can only be solved on a worldwide basis. Without histrionics, the question faces us—the future of the Earth is in our hands; how shall we decide?

The issues raised by environmental concern are manifold, diverse and of great complexity. It is to these that this bibliography is addressed. Its primary focus is on books that present policy issues and interdisciplinary concepts, rather tnan those that deal narrowly with particular problems

and their technological solutions. The listing is designed to provide the nonspecialist with a wide spectrum of views and opinions; some reflective of the physical sciences and technology, others of the economic, sociological and political realities that dictate whether new technologies will or will not be used, whether innovative or restrictive policies will be imposed.

Although the titles cited are written by authors competent in their fields, contrasting and at times conflicting points of view are presented. Some books are optimistic about our present and future capability to solve, or at least ameliorate, the abuses represented by physical pollution, the depletion of natural resources, the excesses of population growth and the exacerbating imbalances between the rich, industrialized nations and the poorer, developing ones. Other books listed here are frankly alarmist about the present, and pessimistic about the future.

No volume provides a synthesis or reconciliation of these disparate assessments. The environmental field lacks an Aristotle to impose a philosophical order on the vast body of scientific information and speculative thought that exists. And to date, no book of incisive insight, of benchmark importance, comparable to Darwin on evolution, Einstein on relativity, or Freud on the interpretation of dreams, has surfaced.

The limitations of this listing are ameliorated somewhat because most of the books included have extensive bibliographies of their own. Interested readers will find numerous other easily approachable information sources.

The U.S. Government (both executive agencies and Congressional committees) has been prolific in publication of documents on natural resources, wildlife, conservation and environmental policy; these are indexed in the *U.S. Government Publications: A Monthly Catalogue* available from the Government Printing Office, Washington, D.C. 20402. The Natural Resources Library of the U.S. Department of the Interior publishes a semimonthly listing of publications, including books and periodicals. Subscription to this *Environmental Awareness Reading List* is available through the National Technical Information Service, U.S. Department of Commerce, Springfield, Va. 22151.

Among others that have prepared extensive reading lists are the Conservation Library Center

(1357 Broadway, Denver, Colo. 80202), the Sierra Club (1050 Mills Tower, San Francisco, Calif. 94104) and the American Library Association (500 Huron Street, Chicago, Ill. 60611).

The National Wildlife Federation (1412 16th Street, N.W., Washington, D.C. 20036) publishes an annual *Conservation Directory* that lists all major international, national, interstate, state and citizen organizations active in this field. Many of these groups have published bibliographies tailored to their special interests. Further, many professional, trade and industry associations offer publications in their specific fields of resource management and industrial processes. Some of these associations publish newsletters as well.

Reflecting the mounting interest and concern about the environment, magazines, newsletters and occasional papers have so proliferated that they are impossible to list in a modest bibliography. Some are wholly devoted to ecological interests, others are magazines of general interest that have regular departments on the environment. A public, school or college library can provide access to services that review and document current periodical, newspaper and other literature of interest.

And, of course, all that is significant about the environment has not been said or written in the last few years. In 1864, George Perkins Marsh published his now classic *Man and Nature: Or, Physical Geography as Modified by Human Actions,* in which he developed the thesis that it was the duty of each generation to use the environment in a way that did not impair the natural endowment of future generations. Or, as Thomas Jefferson expressed it in a letter to James Madison, "The earth belongs always to the living generation. They may manage it then, and what proceeds from it, as they please during their usufruct."

The tenure of successive occupants of Earth is brief. But, with care, the tenure of mankind may be long. And to end with a cautionary word—from Joseph Wood Krutch, preeminently a naturalist and a man of letters, in his warning to the spring peepers, "Don't forget we are all in this together"—a message at once simple and very complicated.

Ruth A. Hussey
Editor

Bibliography of Selected Reading

Anderson, Walt, editor. *Politics and Environment: A Reader in Ecological Crisis.* 1970. Goodyear Publishing Co., Pacific Palisades, Calif. (362 pp., $8.45).

This is an intellectual grab bag with something for everyone concerned about the environment and the measure of man and his society. Some 30 essays, written by scientists and publicists representing a diversity of disciplines, are marshalled under six major categories.

Though the viewpoints presented are various, central to all is recognition of the interrelated problems created by this century's unprecedented technological expansion, coupled with the exponential growth of the American population and economy. The ecological consequences of this enormous growth on man, and this immense utilization of natural resources are analysed in their endless manifestations—physical, biological, sociological, economic, and—in the end—political. The argument here is that the time is long past for piecemeal solutions to individual ecological disasters and the time has come for a national, and ultimately an international commitment to a policy of environmental control.

Most of these essays have been published in popular and scholarly periodicals or as chapters in books; no one of them provides a final solution, but pertinent questions are raised.

Bausum, Howard T., editor. *Science for Society: A bibliography (3rd Edition).* 1973. American Association for the Advancement of Science, Washington, D.C. (92 pp., $1).

This bibliography prepared by the AAAS's Commission on Science Education is designed for both teachers and students of secondary schools and colleges, and for lay groups concerned with the social problems of scientific and technological advances. Listings are grouped under: Reference; Science, Technology, Society; Resources and the Environment Education; Health; Conflict and Population. The citations are about evenly divided between books and periodical literature, and the range of selection is extremely wide.

Brooks, Paul, *The House of Life.* 1972. Houghton Mifflin Co., Boston (350 pp., $8.95).

Rachel Carson would have been pleased by this testament to her work. Miss Carson, who

died in 1964, was an intensely private person, so this is an intellectual and literary biography rather than a personal one. The focus is on the five books published between 1941 and 1965, *Under the Sea-Wind, The Sea Around Us, The Edge of the Sea, Silent Spring, and The Sense of Wonder,* and on major periodical articles, unpublished manuscripts, interviews, and correspondence. Since there are generous excerpts from all these sources, this is both an excellent introduction to her work, and a poignant recollection for those who have long admired her life and writing. Special attention is given to the genesis, the writing and the violent reaction to *Silent Spring,* her most famous and controversial book. Mr. Brooks believes that Miss Carson's work provided the same kind of excitement for environmentalists that Einstein's did for physicists and Darwin's for biologists.

Chisolm, Anne. *Philosophers of the Earth: Conversations with Ecologists.* 1972. E. P. Dutton & Co., Inc., New York (201 pp., $8.95).

This is a layman's guide to ecological thinking as practiced by leading scientists, activists and publicists in the United States, Great Britain, and Europe. It is based on lengthy interviews with 16 men, among them Lewis Mumford, Rene Dubos, Kenneth Boulding, Sir Frank Fraser Darling, Charles Elton, Barry Commoner, Donald Kuenen, Paul Ehrlich, Norman Moore, and Jean Dorst. Although their individual disciplines differ and their styles range from a strict concentration on field studies to the wide-ranging popularizations of the ecological crisis, they share a common concern that man's actions are impinging more and more on the biosphere, and that the time is now for a critical assessment of the consequences. Of singular interest is the author's tracing of the development of each man's career and his ideology.

Cole, H. S. D.; Freeman, C.; Jahada, M.; Pavitt, K., editors. *Models of Doom: A Critique of Limits to Growth.* 1973. Universe Books, New York (244 pp., $2.95).

This book by 13 Sussex University scientists attacks the arguments of Dennis Meadows and his collaborators at MIT in *Limits To Growth* (see page 13). The Sussex scientists argue that the MIT group's methods, assumptions, data, and predictions are faulty, that their world model has a built-in Malthusian bias and does not reflect

reality. They charge that a major limitation to the MIT approach is that it excludes politics, social structure, and human needs and desires. They believe that changing social and political values will significantly affect exponential growth, that the collapse of the world's ecosphere which the Meadows' group postulates, is needlessly alarmist, and that his policy recommendations would be impossible to implement.

Daly, Herman, editor. *Toward a Steady-State Economy.* 1973. W. H. Freeman & Co., San Francisco, Calif. (332 pp., $8.95 cloth, $3.95 paper).

Increasingly the debate of growth vs. nongrowth occupies center stage in economic and political colloquies. These essays argue that uncontrolled growth is irrational, destructive of our environmental patrimony, and will be ultimately fatal. The traditional view that growth is the primary measure of progress, is dismissed as an obsolete myth. Evolution towards an economic system with rational consumption of goods and resources is advocated. Contemporary concern about the energy "crisis" gives pertinency to Mr. Daly's contention that today the energy industry is absorbing an ever-increasing capital investment, but that its relative productivity is diminishing and its percentage of jobs in the economy is dropping. Thus, more growth means relatively fewer jobs. Going beyond economics, Mr. Daly proposes that we develop methods of income distribution independent of the "income-through-jobs" link.

Dasmann, R. F.; Milton, John P.; Freeman, P. H. *Ecological Principles for Economic Development.* 1973. John Wiley & Sons, Ltd., London, New York (252 pp., $5).

This title was commissioned jointly by the International Union for Conservation of Nature & Natural Resources (IUCN), Morges, Switzerland, and the Conservation Foundation, Washington, D.C. It is written from the ecologist's point of view for those concerned with development, either at a national level or in connection with the aid programs of the international agencies and private foundations.

Properly implemented, the authors believe the objectives of conservation and development should coincide if the long-term well-being of the human race is given equal consideration with man's immediate needs. Particular emphasis is on eco-

systems currently subject to heavy development pressures: for example, those known to be especially fragile, such as high mountains, coastal areas, and islands. Diverse problems related to dams, irrigation, and other major river-basin development, power-plant siting, forestry, livestock and agricultural projects, and the promotion of tourism, are examined. The authors contend (and cite past instances to show) that, if ecological factors are excluded from the initial planning stages for man-modifications of ecosystems, consequences that ensue frequently are the reverse of what was intended.

DiBlasio, Kathleen M., editor. *Conservation Directory, 1973.* The National Wildlife Federation, Washington, D.C. (184 pp., $2).

This directory is published as a Conservation Education Service of the Federation. It provides a detailed and extensive listing of organizations and agencies and of public interest and citizen groups concerned with environmental protection, natural resource use, and the preservation and management of wildlife.

Disch, Robert, editor. *The Ecological Conscience: Values For Survival.* 1970. Prentice-Hall, Inc., Englewood Cliffs, N. J. (206 pp., $2.45).

This collection is based on the joint premises that man-made changes in the biosphere threaten the integrity of the life-support system essential for human survival, and that the complexities of the environmental crisis constitute the most serious problem facing man today. These problems are delineated, and sometimes explained, by a galaxy of experts and publicists of the scientific and the social/economic disciplines. They range from well-known ecologists like Barry Commoner, Paul Ehrlich, Ian McHarg, and Aldo Leopold, to social critics at large such as Lewis Mumford, Buckminster Fuller, Paul Goodman, and Lawrence Slobodkin; the more esoteric ranges of the environmental conscience are explored by Thomas Merton and Alan Watts.

Final conclusions are few in this thoughtful selection of readings. But, despite diversity of viewpoints, there is general agreement that, though science can reveal the depths of our present ecological crises and point the way to some of the technological correctives, only social/political action can resolve it. It is one of the lessons of

history, that every major advance in the technological competence of man has generated revolutionary changes in all the primary structures of society, and the values and attitudes held by each of us.

Dorfman, Robert & Nancy S. *Economics of the Environment; Selected Readings.* 1972. W. W. Norton & Company, Inc., New York. (426 pp., $4.75).

Pollution is a by-product of regular economic activities, and this volume offers a sophisticated and scholarly examination of how the flow of real income can be maintained without abusing the environment. It consists of 26 papers, written by distinguished economists (among them Mishan, Kneese, Coase, Leontief, Galbraith, Dales, Landsberg, and Friedman) divided into five groups. The first group blocks out the problem by pointing out the main economic issues. The second develops the concepts and methods of economic analysis as they apply to environmental problems. The third section presents the pros and cons of various policies for environmental protection. The fourth explores the reasons for the accelerating abuse of the environment in the last 30 years, and the concluding section explains the methods and difficulties involved in making quantitative assessments of environmental damage and costs of abating it.

Together these papers survey the key aspects from an economic point of view. However, no attempt is made to delineate an overall philosophy of balancing economic costs against environmental degradation nor is a coherent program of action recommended.

Freeman, A. M.; Haveman, R. H.; Kneese, A. V. *The Economics of Environmental Policy.* 1973. John Wiley & Sons, Inc., New York, London (184 pp., $4.45).

Here the achievement of environmental quality, or its lack, is presented as an exercise in efficient economic management of material resources. The authors believe the competitive market system has served reasonably well in parcelling out resources to individual (and corporate) owners but fails to work for "common property" resources, i.e., the air, river systems, the oceans, federal lands and their undeveloped resources, and other large ecological systems. To correct this, they feel, environmental resources must be given the same cost-

accounting as anything else that goes into the Gross National Product.

The economic rationale of existing and proposed environmental legislation is examined and found wanting. The authors state that to bring environmental resources back into the economic system so that they can be subject to the same kinds of constraints that now influence the use of other resources—land, labor, and capital—will require major rethinking not only of our economic imperatives, but of our political and legal establishments as well.

No firm conclusions are reached, but the authors pose the hard and unresolved questions of how much cleaning up of industrial pollutants is actually going to be done, and who is going to pay for it; essentially political decisions.

Gillette, Elizabeth R., editor. *Action for Wilderness* (Sierra Club Battlebook series). 1972. Sierra Club, San Francisco, Calif. (222 pp., $2.25).

This is a critical assessment of the intent and the administration of the *Wilderness Act* passed by Congress in 1964 to establish the "National Wilderness Preservation System." (The Sierra Club believes that the Act itself is flawed seriously because it requires lengthy Congressional approval of every wilderness area added to the System.) Individual chapters cite both successful and failed campaigns for designating "wilderness areas." Others explain the techniques for making a wilderness study to develop a wilderness area proposal and for organizing public support. Still others are regional case studies. In the concluding chapter, Russell E. Train (former Chairman of the Council on Environmental Quality and now Administrator of EPA) discusses President Nixon's 1971 proposal for the World Heritage Trust. Much of the text is based on the proceedings of the Sierra Club's Twelfth Biennial Wilderness Conference (1971), and the views expressed are strongly conservationist. It is an action manual for the already converted.

Goldman, Marshall I. *The Spoils of Progress: Environmental Pollution in the Soviet Union.* 1972. The MIT Press, Massachusetts Institute of Technology, Cambridge, Mass. (372 pp., $7.95).

This examination of environmental law and practice in the USSR reveals that it has environment-related problems as extensive and severe as

our own. While state ownership of production resources eliminates some forms of environmental disruption, it also exacerbates others, such as pollution caused by the rapidity of industralization, concentration of heavy industry over a small area, or, since industry is state-owned, the identity of interest between plant manager and local government official because for both the criterion is increased production. The USSR has a set of model pollution-control laws, but the author says compliance is indifferent and enforcement ranges from weak to non-existent. As in America, rapid industrialization and unrestrained growth are eroding the Soviet environment. Ironically, as the author, an economist and associate of the Russian Research Center at Harvard, points out the Russians now find themselves in the unenviable position where they must increase their rate of growth in order to generate enough resources to provide for pollution control.

Graham, Frank, Jr. *Man's Dominion: The Story of Conservation in America.* 1971. J. B. Lippincott Co. Philadelphia (339 pp., $8.95).

Earth Day, 1970, was not without precedents; the conservation movement has long been implicit in American life. This book recounts the history of that tradition from the 1880's to the passage of the Wilderness Act of 1964.

Although today's environmentalists are primarily concerned with man and his survival under the duress of global pollution, the earlier conservationists usually had specialized concerns—preservation of a particular place, a species, or a threatened natural resource. Using whenever possible their own words, Mr. Graham presents the thought and activities of such early battlers as Guy Bradley for the preservation of the Everglades, Gifford Pinchot who persuaded President Theodore Roosevelt that natural resources were not always expendable, John Muir, the celebrant of the Sierra, Steve Mather who promoted national parks, and many others. The intramural controversies within the movement are detailed as well.

Hardin, Garrett. *Exploring New Ethics for Survival: The Voyage of the Spaceship Beagle.* 1972. The Viking Press, New York (273 pp., $7.95; $1.45 paper).

The author, professor of Human Ecology at the University of California, is a prolific writer on the

environment, and his essay, *The Tragedy of the Commons,* written in 1968, has become a classic. This is a further elaboration of the thesis that there are too many people making too many demands on the common resources. It is cast as a fable, the voyage of the Spaceship Beagle searching for habitable planets in other solar systems some 200 years in the future.

The reason for this journey is that man had exhausted the finite capacity of the earth to support his exorbitant numbers and demands. Unfortunately, the ethical misconceptions and false economies that made this planet uninhabitable continue within the space capsule, and soon the plight of the voyagers is comparable to the one they left behind. Within this science-fiction framework, Mr. Hardin offers a wide-ranging exposition of the population-environmental-quality-of-life complex. Believing there are no easy answers, radical alternatives to our present life are advocated.

Helfrich, Harold W. *Agenda for Survival: The Environmental Crisis—2.* 1971. Yale University Press., New Haven, Conn. (234 pp., $10).

This title—and a similar book that preceded it (*The Environmental Crisis: Men's Struggle to Live With Himself*)—is derived from the two-year Yale School of Forestry symposium on "Issues in the Environmental Crisis." The 14 papers reflect the theoretical and practical work of well-known authorities from such diverse fields as the applied sciences, sociology and economics, industry, conservation, architecture and urban design, law, and politics. This holistic approach is used because the total-environment theory of the "new conservation" movement demands an overview of man and his many activities that are determining tomorrow's habitat.

Crucial issues explored include the need for worldwide pollution control, the uses and abuses of pesticides and other chemicals, the strategies for the recovery of urban areas, the responsibility of Congress and other government institutions, the role of citizens groups, and cost accounting for the achievement of a clean environment.

Inglis, D. R. *Nuclear Energy—Its Physics and Its Social Challenge.* 1973. Addison-Wesley, Reading, Mass. (395 pp., $4.95).

This is a heroic attempt by one scientist to

cover all applications of nuclear energy, from international weaponry to domestic power reactors. It can be construed as a kind of environmental impact statement on the increasing reliance on nuclear reactors in this present-day energy crisis. The problems of power reactors are identified and emphasis is placed on the potential for serious accident and genetic damage. Dr. Inglis believes that the danger from the fast breeder reactor is underestimated by Washington experts. He recommends a moratorium on nuclear-power-plant-reactor development and siting.

Consideration is given to nuclear weapons, their mechanics, their accident potential, and their stockpiling by the major world powers. The argument here is that U. S. policy should be to work for an amplification of the "Limited Test Ban Treaty of 1963" so that all nuclear explosions would be banned by treaty. Although this book has been written for the general public interested in the environmental consequences of the increasing reliance on nuclear energy, supplementary chapters on scientific principles and background material drawn chiefly from the disciplines of chemistry and nuclear physics are included.

James, Bernard. *The Death of Progress.* 1973. Alfred A. Knopf, New York (166 pp., $5.95).

A professor of anthropology, the author examines critically the cult of progress; its development as a secular substitute for earlier religious-ethical beliefs, its long reign in western society, and its present dubiety. Belief in the supremacy of progress as the measure of a society's worth, he argues, has resulted in the moral and ecological predicament of our present world culture. Our progress culture (the first to depend upon high technology) is seen as destroying irreversibly the very planet that sustains it. The author warns that unless rational limitations are placed on present overreaching demands on resources and living space, "natural correctives" (that we will term eco-catastrophes) will impose their own drastic ones. Present courage to break with the idea that endless materialistic advancement is not only good but possible, and that what technology has abused it will correct, is the first order of business in Dr. James' scenario. Supportive evidence is drawn primarily from the social philosophers rather than the scientific disciplines.

Kahn, Herman & Bruce-Briggs, B. *Things To Come: Thinking About the 70's & 80's.* 1972. The Hudson Institute. The MacMillan Co., New York (262 pp., $6.95).

By inclination every environmentalist is a "futurist" in one way or another. Mr. Kahn is one of the best known of bold speculators about the future shape of our society. This book overlaps and continues the themes of his famous book, *The Year 2000* (1967). While the earlier book was concerned with long-range prospects, this looks at the short and middle-range prospects of mankind. Although the societal (and value) scenarios and technological forecastings are multiple and diverse, central to all is the belief that it is necessary and possible to study the future even though the future does not yet exist.

One chapter, "The 1985 Technological Crisis—The Social Effects of Technology." covers many issues but makes three major points: (1) It is possible that many different technologies will break down simultaneously; (2) many crises are of a greater magnitude than those coped with in the past; and (3) because both pollution and technology tend to grow expotentially, we often do not know about problems until they are critical and there is little time to prevent damage. Both the authors are eminent in the socio-economic and historical disciplines but in a sense this is an "organizational" book: The product of The Hudson Institute's on-going study (begun in the mid-sixties) of the future of the U. S. and the world.

Leavitt, Helen. *Superhighway—Superhoax.* 1970. Doubleday & Co., New York (324 pp., $6.95).

This is a thoroughly documented book by a long-time critic of the Federal Interstate Highway System. The author disputes the claims of the "highway lobby" that America's continued survival and well-being depend on the extent of its freeways. While acceeding to the need for a national network of good, high-speed roads, she views the present system as a perversion of scale and priorities. She examines interests with a stake in the preservation of the current system (the automobile manufacturers, oil, rubber, cement companies, and the construction industry among them), and the institutional means by which they preserve it. Also discussed with detailed case his-

tories are the penalties paid by the majority—urban congestion, suburban blight, polluted air, and fragmented communities.

Mrs. Leavitt argues that, until freeways are treated by planners as a single aspect of a balanced transportation system, and the Highway Trust Fund is opened to permit the development of urban transportation needs, we will remain trapped by the consequences of a concept that has proven counterproductive of its professed end.

Lewis, Richard S. *The Nuclear-Power Rebellion.* 1972. The Viking Press, Inc., New York (313 pp., $8.95).

Essentially this is an account of growing citizens' concern about, and organization against the atomic industrial establishment. With the proliferation of nuclear power installations, there is mounting local anxiety about the long-term radiation effects and the accident hazards posed by nuclear power plants scheduled for nearby construction. The author, a long-time science journalist and presently editor of "Science and Public Affairs: the Bulletin of Atomic Scientists," criticizes the Atomic Energy Commission for its conflict-of-interest role as both promoter and regulator of atomic energy and its alliance with industry and privately-owned utilities. Documented are AEC's shifting relationships with environmentalists and others concerned about our growing reliance on a "hazardous" technology and the scientific establishment's internal controversies about AEC's safety and health standards, its issuance of plant licenses, its technical and industrial procedures, and the little-publicized accidents and near-accidents in atomic plants.

Lewis, Richard S. editor. *The Environmental Revolution (A Science and Public Affairs Book).* 1973. Educational Foundation for Nuclear Science, Chicago (164 pp., $3.50).

This volume presents many of the ideas and viewpoints that have appeared in *"Science and Public Affairs," the Bulletin of the Atomic Scientists,* in the last four years. Although reflective of the multi-disciplines of the physical, the biological, and the applied sciences, the unifying concern is long-term human survival. This bounty of intellectual fare is organized under five major categories—Statements of Concern, Our Endangered World, Manipulating the Environment, Energy

and the Environment, Suggestions and Remedies. All the contributors are distinguished.

McHale, John. *The Ecological Context.* 1970. George Braziller, Inc., New York (188 pp., $7.95).

The author, director of the Center for Integrative Studies in the State University of New York at Binghamton, offers a sophisticated and technical treatment of the consequences and implications of man's interaction with the environment. Focusing primarily on the "life-support" systems of the physical environment—energy and materials—the discussion revolves around the inquiry: What are the physical operational parameters for the planet—the ecological or housekeeping rules that govern human occupancy? Included are physical limits and contraints in the overall ecosystem, relevant human (biological) limits, and irreparable resource limits. Through graphic documents, charts, depiction of ecological systems and cycles, and verbal description and analysis, the author establishes the "state of the art" in ecological terms, and furnishes a good foundation for environmental planning. A "selected reading" list includes many titles on specific technical aspects of the environment.

Maddox, John. *The Doomsday Syndrome.* 1972. McGraw-Hill Co., New York (291 pp., $2.95).

This is another entry in the controversy about growth, its possible limits, and the future. Mr. Maddox is the editor of *Nature,* the prestigious British journal of science, and this book was written primarily to contravene the widely publicized "Blueprint for Survival" (*Ecologist,* January 1972). That article argued that the world cannot sustain continuous expansion much longer and proposed a carefully controlled program of growth. To Mr. Maddox, many contemporary scientists, politicians, and other critics active in the environmental movement are false prophets of doom. Optimistic about the present and the future, he marshals evidence to show that the environment has been treated more badly in the past than would now be permissible, that the extinction of some wildlife species, though regrettable, poses no warning for human survival, and that the scale of man's disruption of the ecosphere is puny compared to the dimensions of natural phenomena. The Malthusian projection of catastrophe by over

population will be averted, he believes, because the improved standard of living that accompanies industrialization, will in itself, lower the fertility rate of developing nations.

Meadows, Donella H. and Dennis L.; Randers, Jorgen; and Behrens, William V. *The Limits to Growth.* 1972. Universe Books, New York (207 pp., $1.25 paper).

The assumption that growth is inevitable, necessary, and desirable, long persuasive in Western thinking, has recently, come under critical attack. This book, like the earlier British study, *A Blueprint for Survival,* examines the interrelationships of basic factors that determine growth—population, agricultural production, natural resources, industrial production, and pollution. It concludes that if population, pollution, and resource consumption continue to increase rapidly, conditions could become so disastrous that a sharp drop in population and living standards would result around mid-next century. The study, done by a research team at Massachusetts Institute of Technology, was commissioned by The Club of Rome (a prestigious international group set-up in 1968 by the Italian economist and industrialist Dr. Aurelio Peccei). Computer simulations on a global scale were used to predict the effects of future interaction of the "survival factors." Although some of the assumptions, and, consequently, some of the conclusions have been criticized as unrealistic and "alarmist," it is virtually the only study that deals with growth problems far out on the space-time graph.

Metzger, H. Peter. *The Atomic Establishment.* 1972. Simon and Schuster, New York (318 pp., $8.95).

This is a muckraking critique of the Atomic Energy Commission (AEC) and its legislative overseer, the Joint Committee on Atomic Energy. The author believes that instead of the intended adversary relationship, the latter has become the apologist for the AEC which operates essentially without review or restraint. Mr. Metzger, a biochemist, charges that the AEC has pursued inappropriate technological adventures, has become a secretive agency, and has been less concerned with public safety than with the vigorous promotion of nuclear power. The author seeks to promote public questioning of present nuclear reactor

construction, and of AEC's behavior in other areas. Among them are nuclear weapons acquisition and testing programs, effects of radioactive fallout, uranium mine radon, waste storage irregularities, and a range of derelict "atomic gadgets."

Montague, Katherine and Peter. *Mercury* (Sierra Club Battlebook Series). 1971. Sierra Club, San Francisco, Calif. (158 pp., $2.25).

This book discusses the pervasiveness of mercury in the environment and its known and suspected biological effects on man. The enormous amount of mercury, casually dumped into the environment, has produced many public health questions but no reassuring answers. Case histories involving toxic damage to the living and the unborn are cited. Federal agencies (among them the USDA, Interior, HEW) are criticized for their past failure to set strict standards and controls on the discharge of mercury from industrial and agricultural sources, and for failing to develop sensitive monitoring procedures to detect mercury in air and water. The authors believe that the dangers of mercury pollution are so great that an accountability system for mercury (and other persistent toxic substances) is needed. The appendices include major industrial uses of mercury, a State-by-State pollution survey, and a selected bibliography.

Neilands, J. B.; Orians, Gordon H.; Pfeiffer, E. W.; Vennema, Alje; Westing, Arthur H. *Harvest of Death.* 1972. The Free Press, Division of the MacMillan Co., New York (304 pp., $10).

The 1968 convention of the American Association for the Advancement of Science established a "Scientists Committee on Chemical and Biological Warfare," to assess U. S. policy and practice in Southeast Asia. This book is the examination by five scientists (botanist, biochemist, zoologists) of the military uses of chemical agents against the flora, fauna, and the population of that region. The scientists' concern is legitimate here, since agents used, i.e., herbicides, for one, are derived from basic discoveries of science. Whether the complex ecosystem of Vietnam, Cambodia, and Laos will recover, and when, the authors believe is a matter of scientific speculation. An assessment of the effects of defoliation on plant and animal life require long-term, intensive studies.

Passell, Peter and Ross, Leonard. *The Retreat from Riches: Affluence and Its Enemies.* 1971. The Viking Press, New York (185 pp., $6.95).

Economics has moved onto center stage as the controversy grows not only over whether a high consumption society is compatible with a healthy ecology, but, and perhaps more importantly, who pays for industrial growth and its consequent pollution.

The authors, two Columbia University professors, examine the axioms of growth and anti-growth, and come out, resoundingly, for growth. Economic growth, they claim, is the best and perhaps the only way to cure America's environmental, sociological, and economic ills. It need not degrade the environment, since pollution results from a perverse system of incentives to industry. If industrial firms were forced to pay for their abuses, poisoning the air and fouling the water, management would acquire technologies to clean up polluting sources.

Mr. Passell and Mr. Ross question projections used in *Limits to Growth* (see page 13). Their answer to the "natural-limit" to growth theory (i.e., all resources are finite) is that most new technologies and scientific breakthroughs will provide substitutes for scarce materials, produce others by recycling, and unlock new sources of energy infinitely.

Reilly, William D., editor. *The Use of Land: A Citizens' Policy Guide to Urban Growth.* 1973. Thomas Y. Crowell Co., New York (318 pp., $3.95).

"The Task Force on Land and Urban Growth" was created by the Citizens' Advisory Committee on Environmental Quality in the summer of 1972. Chaired by Laurance S. Rockefeller, its members were chosen from government, business, and academia. Their report offers a realistic appraisal of what can be done in the foreseeable future to influence the development and redevelopment of cities, suburbs, and remote areas, to achieve a balance between the forces of conservation and the urgencies of growth. An even-handed assessment is given. The study is based on careful analysis of major and recent land use reports, examination of State and national legislation, enacted and pending, and comprehensive field studies of Florida, New York, Colorado, and California. Although the report reflects a variety of present

discontents, the authors believe that changes in planning and control can be achieved, and will result in a qualitatively different America. Recommendations are made for enactment and implementation of national land-use policy, and legislation providing Federal recognition, guidance and financial assistance to States that undertake the reform of their land-use laws and institutions.

Ridgeway, James. *The Last Play: The Struggle to Monopolize the World's Energy Resources.* 1973. E. P. Dutton & Co., Inc., New York (446 pp., $10).

The thesis here is that the energy industry is dominated by an international cartel of giant companies, most of them located in the United States, whose intent is to monopolize (and exhaust) the world's energy resources for corporate profits. A "citizens" guide to the major energy institutions provides organizational profiles and histories of over 40 corporations, the resources they control, how they operate, to whom they sell, and the cohesive interlocking relationships that control them. Mr. Ridgeway, a former contributing editor of *The New Republic,* and author of two earlier books on ecology and corporations, argues that the politics of the energy trusts are destructive not only in their wasteful exploitation of natural resources, but in their contribution to the current "energy crisis" psychology. The author proposes a scheme to alleviate the energy crisis that would require the expropriation of this Nation's energy resources by "democratic processes" and the dismantling of the current apparatus through which the energy cartels operate. The arguments offered are controversial; the documentation cited is impressive.

Rocks, Lawence and Runyon, Richard P. *The Energy Crisis.* 1972. Crown Publishers, Inc., New York (189 pp., $2.95).

Written in 1972, a year before threats of energy shortages became dramatic, this book argues with great urgency, that the most profound issue we face is an impending power shortage. The authors believe energy capabilities and their consequences will supercede all other environmental, economic, and political issues before this decade has passed.

Contemporary energy sources (oil, gas, coal, and the atom), estimates of their probable dates

of exhaustion, and the consequent affect on our standard of living are analyzed. Alternative power systems are surveyed.

In comparing the energy situation in various nations, the authors find the USSR the only surviving superstate; China an energy pygmy; Canada relatively strong; Japan the most vulnerable of nations; and Western Europe with energy needs more pressing than those of the United States. And until a self-sufficient synthetic fuel capacity or fusion power is developed, the authors believe the Middle East will hold oil-needing America, Western Europe, and Japan in thrall.

Rosenbaum, Walter A. *The Politics of Environmental Concern.* 1973. Praeger Publishers, New York (298 pp., $3.95),

This is a political scientist's assessment of environmental concern as an increasingly persuasive factor in deciding questions of public policy. Few policy matters before governmental bodies now seem immune from environmentalists, who have identified "battle fronts," where political action is imperative. Concurrently, industry has begun to invest substantial capital and to show the stirrings of environmental sensibilities.

Mr. Rosenbaum believes that the Environmental Era in American politics is here. He argues for the development of a comprehensive, long-range planning process that will reflect environmental necessities at all major decision-making levels, both private and public, rather than the current incremental approach. He details the interplay between various and competing interests and the role of the Council on Environmental Quality and EPA.

Major credit is given to organized environmental groups for mobilizing public discontent with environmental degradation, for proselytizing to increase the political strength of these public interests, and for bringing sustained pressure on government and the Congress to remedy or prevent ecological ills. However, there is substantial agreement among environmentalists that the Federal Government must become the Nation's comprehensive planner; must establish priorities for environmental protection, must calculate and create the "trade-offs" to be made, and must plan resource use and conservation several generations ahead.

Sarnoff, Paul. *The New York Times Encyclopedic Dictionary of the Environment.* 1971. Quadrangle Books, New York, Chicago (351 pp., $10).

To think about and understand the environment involves an amalgam of information from a diversity of fields—agronomy, biology, botany, chemistry, engineering, geology, geography, medicine, metrology, oceanography, physics and atomic physics, zoology, business administration, economics, political science, public health, and others as well. Each of these has a jargon of its own. This reference work is: first, a dictionary that provides understandable definitions of environmental terms; and secondly, an encyclopedia that explains and illustrates scientific concepts, technological problems and solutions, causes and effects of environmental degradation, and the state-of-the-art of pollution control. Mr. Sarnoff's work is illustrated with photographs, drawings, diagrams, and understandable data-tables. The alphabetical arrangement of terms makes specific reference easy, but for the reader with time, perusal straight through from A to Z is an education.

Simon, Anne W. *No Island Is An Island: The Ordeal of An Island.* 1973. Doubleday & Co., Inc., Garden City, N. Y. (250 pp., $8.95).

In part, this is an unabashed celebration of "one of the Nation's more blessed outposts" and its beaches, cliffs, dunes, moors, marshes, and ponds. It is also a clinical examination of the land-use controversy, focused here on a 100-square-mile island off the coast of Massachusetts. On Martha's Vineyard, in microcosm, the American dilemma is laid out plainly, how should land be used?

Mrs. Simon (a long-time Vineyard property-owner) presents it all: the many faceted struggle of developers vs. environmentalists, summer residents vs. day-trippers vs. islanders, township authority vs. State and Federal government, landowners vs. regulators. Much of the book is organized around three questions: what is the cost of growth in terms of the natural amenities; how should growth be directed; and should further growth be permitted within the fragile ecosystem of an island.

The author concludes that if Martha's Vineyard is to be saved from haphazard development, it (and the neighboring Nantucket and the Elizabeth Islands) must become a part of a regional

development in which the Federal presence is an active partner. Mrs. Simon believes that time is running out for her beloved Vineyard, and for most islands off both the Atlantic and Pacific coasts, unless ecologically sound regional land-use policies are imposed.

Small, George L. *The Blue Whale*. 1971. Columbia University Press, New York, London (248 pp., $9.95).

The blue whale is the largest now-living creature and perhaps the biggest that has ever graced the earth (some cetologists believe that whales have existed for 50 million years). They have been hunted with such rapacity and improvidence that there is very real concern that the blue whale (and other cetaceans) may soon become extinct. It is to this biological disaster, and the evolution of the modern whaling industry that has made it likely, that Dr. Small (professor of Geography, City University of New York) addresses himself. The whaling policies of various countries are detailed and contrasted; ranging from Norway's exercise of restrictive control over its whalers, to Japan's consistent flouting of even the most rudimentary conservation practices. Fortunately, American activities have been negligible for many years and ceased entirely in 1971. The failure of the International Whaling Commission to restrain the excessive slaughter of whales is treated in detail. The author argues that if all cetacean life is not to be destroyed, the traditional concept of "freedom of the seas" must be put aside and sole authority to harvest whales must be given to an international body, perhaps under the U.N. This book is more than a natural history of the whale and a historical account of the whaling industry and its economics. It poses hard questions; what is the nature of a species—man—that knowingly and without good reason exterminates another? When will modern man learn that he is but one form of life among a multitude of other forms, each of which is in some way related to and dependent on the others?

Stacks, John F. *Stripping* (Sierra Club Battlebook Series). 1972. San Francisco, Calif. (140 pp., $2.25).

The basic question raised is whether strip mining of coal is an economically and environmentally sensible way to meet the Nation's energy needs.

The answer given is an unequivocal "no," and the why is explored in chapters that describe the doomsday landscapes and acid-polluted streams left in the wake of giant machines; the careless dispossession of people; and the coincidence of the development of new and vast earth-moving technologies with the accelerating demand for cheap coal that makes strip mining so very profitable. It pays handsomely, the author points out, because the final costs of production (the environmental and social damages involved) are not borne by the coal strippers and the major energy consumers, but randomly by the public.

The ineffectuality of State laws in regulating stripping and enforcing reclamation, the lack of a strong Federal regulatory program, the equivocal role of the Department of Interior in its leasing of Federal land and water rights, and the sometimes cynical ploy of industry in advertising idyllic scenes of reclamation are examined from the conservationist's perspective.

Strong, Maurice F. *Who Speaks for the Earth?* 1973. W. W. Norton & Co., Inc., New York (171 pp., $6.95).

During the U.N. Conference on the Human Environment (Stockholm, June 1972), The International Institute for Environmental Affairs sponsored the Distinguished Lecture Series. Men and women of international reputations were invited to speak their minds, free of national interest or political constraint. Each lecture was devoted to a major environmental issue, including some which were treated only tangentially by the Conference. This is a collection of those lectures.

In the initial lecture, Barbara Ward presents the conceptual and intellectual framework for the Conference, putting the complexities of the human environment in a broad social, political and moral context and in historical perspective. Rene Dubos believes that as we enter the global phase of social evolution each of us will recognize two countries, one's own and the planet Earth. Thor Heyerdahl pleads the vulnerability of the oceans and man's terrible abuse of them with toxic pollutants. Gunnar Mydral, warns that there are limits to a growth whose component elements all form an exponential curve, and of the hard choices involved in reconciling the disparate needs of the developed and the developing countries. Carmen Miro interprets the interrelations between popu-

lation variables and other social and economic factors. Lord Zuckerman argues that science and technology are not despoilers of the environment but that all future environmental improvement depends upon the wise application of scientific and technological progress. In contrast, Aurelio Peccei, more pessimistically is haunted by the vision of six or seven billion people crowding the globe by the year 2000 or thereabouts, and the problem of settling them and providing for their needs. All seven lectures, diverse as they are, are informed by a humane concern for the predicament of man.

Thibeau, C. E.; Taliaferror, P. W.; editors. *Directory of Environmental Information Sources.* 1972. The National Foundation for Environmental Control, Inc., Boston (457 pp., $25).

This reference work identifies and describes major organizations, both governmental and private, that are sources of reliable information on the environment. Executive departments and independent agencies of the Federal Government and legislative committees of the Congress are listed with descriptive material on their functions and responsibilities, and major personnel are identified. In the private sector, information sources are grouped as citizens organizations, professional, occupational and trade associations, with details of membership, primary interests and purposes, and officers. Comparable information is given on educational institutions with significant study programs on the environment. Additional information sources include bibliographies, other directories, conference and symposium proceedings, documents, and reports. Indices and topical cross references are provided.

It is a guide for all those concerned with the application of political, social, and technical efforts for the betterment of the environment.

Toffler, Alvin, editor. *The Futurists.* 1972. Random House, New York (322 pp., $3.95).

Twenty-two essays, written by men and women from nine different countries, represent the multiple viewpoints current in the futurist movement. Mr. Toffler defines "futurists" as a growing school of social critics and planners, philosophers, scientists, and environmentalists concerned with the alternatives facing man as "the human race collides with an onrushing future." Some of the

essays focus on possible futures, others on probable ones, and still others on preferable futures. Implicit to all is the belief that we can foresee some of the alternatives and reach judgment as to where they will lead us if adopted.

The editor attempts no synthesis of views presented or hard conclusion about the future. Among the contributors are Margaret Mead, Kenneth Boulding, Buckminster Fuller, Erich Jantsch, Arthur Clarke, Herman Kahn, Paul Ehrich, Arthur Waskow, Daniel Bell, John McHale, and Marshall McLuhan.

Vayda, Andrew P., editor. *Environment and Cultural Behavior: Ecological Studies in Cultural Anthropology*. 1969. American Museum Sourcebooks in Anthropology, Natural History Press, Garden City, N. Y. (485 pp., $4.50).

The purpose of the 23 anthropological studies collected here is to make cultural behavior intelligible by relating it to the material world in which it develops or occurs. The selection of articles is characterized by diversity in the demographic and geographic areas, types or levels of economy, and the variety of adaptive behavior described.

This book ranges in discussion from second millenium agricultural practices through the potlatch system of certain North American Indians to the intrusion of smog as part of the ecosystem in Los Angeles. Dr. Vayda is professor of Anthropology at Columbia University. Most of the articles have been published in scholarly journals, and bibliographies follow each chapter.

Ward, Barbara and Dubos, Rene. *Only One World: The Care and Maintenance of a Small Planet*. 1972. W. W. Norton & Co., Inc., New York (225 pp., $6).

Although not an official document, this report was commissioned by the Secretary-General of the U.N. Conference on the Human Environment to provide factual background and a conceptual framework for the Conference. The result of a unique experiment in international collaboration, it represents the opinions of a committee of scientific and intellectual leaders from 58 countries. They provide an accomplished profile of the world and of the sciences, technologies, and social institutions that are having an unprecedented effect on the environment. The authors, one a renowned political economist and the other a microbiolo-

gist, impose balance and stylistic coherence on the frequently contrasting views of the relationships between man and his habitat. Analysis is made of the two worlds that man inhabits, the biosphere into which he is born, the technosphere of his creation, and the critical imbalance between them.

Whitten, Rep. Jamie L. *That We May Live*. 1966. D. Van Nostrand Co., Inc., Princeton, N. J., Toronto, London (251 pp., $6.95).

The author, a long-time Congressman and now chairman of the House of Representatives' Appropriations Subcommittee for Agriculture, Environmental and Consumer Protection, discusses his concern over what he feels are unjustified public fears of chemical pesticides. The public alarm over pesticides and their use, he points out, started with the unwarranted cranberry scare of the 1950's and was greatly heightened in 1962 by the publication of Rachel Carson's *Silent Spring*. Mr. Whitten became involved when these events prompted requests to his subcommittee for millions of dollars for further research on pesticides and pest control. A result of this involvement was Mr. Whitten's conviction that a defense was needed of the pesticides' role in our environment. He became a defender.

The book amply demonstrates that pesticides are to be credited with remarkable advances in agriculture, with all the attendant benefits to contemporary man. Also emphasized are the tremendous benefits pesticides have brought in public health (control of disease-carrying agents), forestry, and household management.

The author addresses a number of controversial issues regarding the effects of pesticides on humans, fish and wildlife, and other "non-targeted" forms of life.

Who's Who in Ecology. 1973. Special Reports, Inc., New York (291 pp., $50).

The result of two years of planning and research, this directory gives biographical information on scientists and members of the academic world whose main focus is on ecology and its related disciplines. Included also are other individuals from politics, government, and public affairs who have close personal involvement with, or have made outstanding contributions to, the improvement of the environment. This is the premier volume of a continuing series.

Wood, Nancy. *Clearcutting.* 1971. Sierra Club, San Francisco, New York (151 pp., $2.75).

This is another in the Sierra Club's Battlebook Series, and its advocacy is explicit in the subtitle, "The Deforestation of America." Its argument is that the U.S. Forest Service is involved too often and too closely with the timber industry. The industry believes clearcutting—total cutting of all "harvestable trees" in any area—will encourage rapid growth of second, third and fourth crops of trees.

Mrs. Wood argues that clearcutting is an ecological disaster. In its wake, she contends, comes land erosion, siltation and sedimentation of streams, the end of wildlife, and the perversion of verdant mountains to barren moon-scapes. There is also scientific opinion that disruption of age-old soil conditions in the forests could leave the land barren in less than 200 years, and therefore unable to support merchantable saw-timber for 5,000 or more years. A formidable prospect, not only for the ecologist but for the economist as well.

A major recommendation is that the Forest Service be placed under new leadership, new principles, and a new department—a Department of Natural Resources. Other recommendations include imposition of immediate moratoriums on clearcutting and timber exports, and the re-direction of forestry practices to conserve and perpetuate the interdependent resources of trees, wildlife, soil, water, and air.

World Health Organization. *Health Hazards of the Human Environment.* 1972. World Health Organization, Geneva, Switzerland (387 pp., $11.25).

The World Health Organization, a U.N. affiliate representing the public health and medical professions of over 130 countries, has compiled this wide-ranging survey of environmental hazards to human health. The human environment is considered here as those external physical, chemical, biological, and social influences that have a significant effect on the health and well-being of both the individual and the communities of people. Discussion ranges from the poor sanitary conditions and communicable diseases that plague developing countries, to the more indirect physical and chemical factors and psycho-social influences that effect economically advanced and industrialized nations.

BIBLIOGRAPHY OF SELECTED READING

The following are brief reviews of titles in EPA's first edition (1971) of An Environmental Bibliography. This pamphlet is now out of print.

American Association for the Advancement of Science. *Science for Society.* 1971. Commission on Science Education, (AAAS), Washington, D. C. ($1; 10 for $7.50)—A bibliography on the application of science and technology to human problems with emphasis on environment and population.

American Association of University Women. *A Resource Guide on Pollution Control.* 1970. Washington, D.C. ($1.25). Delineates major environmental problems, indicates the resources available for correction and suggests citizen action programs.

American Chemical Society. *Cleaning Our Environment. The Chemical Basis for Action.* 1969 and Supplement. 1971. Washington, D.C. (Original Report, $2.75, Supplement, $1). Report on the current status of the science and technology of environmental improvement which includes a list of priority recommendations for action.

Brodine, Virginia. *Environmental Workbooks.* 1970–71. Scientists' Institute for Public Information, New York (Single copy $1; set of eight titles, $5). A series of workbooks on various environmental problems designed for the concerned citizen but written by SIPI scientists.

Caldwell, Lynton Keith. *Environment: A Challenge to Modern Society.* Natural History Press. 1970. Doubleday & Co., Garden City, N.Y. ($7.95). An assessment of the new patterns of individual and social action needed if man is to contend with increasing environmental problems.

Carson, Rachel L. *Silent Spring.* 1962. Houghton Mifflin Co., Boston ($5.95). Also, Fawcett Publication, Inc. ($.95). Focuses on the damage done by massive use of chemicals to control pests.

Commoner, Barry. *Science and Survival.* 1966. Viking Press, New York ($4.50; paperback $1.35). Presents a case against the unbridled application of science and technology to the manipulation of the environment and biological man.

Commoner, Barry. *The Closing Circle; Man, Nature & Technology.* 1971. Alfred A. Knopf, Inc., New York ($6.95). Discusses the environmental crisis as the result of man's social mismanagement of the world's resources, and the post-World War II development of a new and destructive technology.

Congressional Quarterly. *Man's Control of the Environment.* 1970. Washington, D.C. ($4). A general survey of the major fields of environmental pollution but with emphasis on legislation.

Cooley, Richard A. & Wandesforde-Smith, Geoffrey. *Congress and the Environment.* 1970. University of Washington Press, Seattle, Wash. ($8.95). Examination of the public policy issues inherent in efforts to improve the quality of the environment, and a collection of case studies of recent legislation.

Council on Environmental Quality: *Report of the Council on Environmental* Quality. (1970, 71, 72.) U.S. Government Printing Office, Washington, D.C. ($1.75). The first, second and third reports to the Congress on the state of the Nation's environment.

Davies J. Clarence. *The Politics of Pollution.* 1970. Pegasus, Division of Western Publishing Co., Inc., New York ($6). A discussion of the political process and its role in the shaping of the Nation's environment.

DeBell, Garett. editor. *The Environmental Handbook.* 1970. Ballantine Books, Inc., New York ($.95). Prepared for the first national environmental teach-in, this handbook focuses on major problems and suggests programs for community action.

Dorst, Jean. *Before Nature Dies.* 1970. Houghton Mifflin Co., New York ($8.95). (Transl. from the French.) Examines the impact that man has had on wildlife throughout the world and his belated efforts to correct the damage.

Dubos, Rene. *So Human an Animal.* 1969. Charles Scribner's, Totowa, N.J. ($6.95; paperback $2.25). A continuation of earlier explorations into man's relation to his natural environment and his adaption to the new environments created by scientific technology.

Ehrich, Paul R. *The Population Bomb.* Sierra Club/Ballantine Book, Inc., New York ($.95). Assessment of the impact of unbridled population increase upon a finite environment.

Esposito, John C. *Vanishing Air.* 1970. Grossman Publishers, Inc. Order from: Viking Press, New York ($7.95 hard cover; $.95 paper). A Ralph Nader study group report on air pollution.

Fanning, Odom. *Opportunities in Environmental Careers.* 1971. Universal Publishing and Distributing Corp., New York ($5.75). Discusses disciplines which will be required in the next decade to solve problems of the environment.

Fortune Magazine. *The Environment: A National Mission for the Seventies.* Perennial Library,

1970. Order from: Harper & Row, Scranton, Pa. ($1.25). A reprint of 13 articles devoted to the environment which were first published in *Fortune* magazine.

Graham, Frank, Jr. *Since Silent Spring.* 1970. Houghton Mifflin Co., New York ($6.95). A tribute to the late Rachel Carson and a case history of the continued controversy over the use of pesticides.

Guggisberg, C. A. W. *Men and Wildlife.* 1970. Arco Publishing Co., Inc., New York ($12.50). An examination of the historical impact man has had on wildlife, his sporadic efforts to conserve and protect endangered species, and a survey of national parks and nature reserves throughout the world.

Hardin, Garret. introduction by. *Science, Conflict & Society: Readings from Scientific American.* 1969. W. H. Freeman & Co., San Francisco, Calif. ($10 hard, $5.75 paper). Anthology of articles, papers, reviews and letters to the editor basic to an understanding of man and the complexities of his environment.

Hawkins, Mary E. *Vital View of the Environment.* 1971. National Science Teachers Association, Washington, D.C. ($1.50). Brief presentation of the major environmental concepts on which educational programs can be built.

Jarett, Henry. editor. *Environmental Quality in a Growing Economy.* 1966. The Johns Hopkins Press, Baltimore, Md. ($1.95). Essays by 12 distinguished scholars who examine the current state of economic research into the problems of the environment and assess the public attitudes that affect social, political and private action.

Johnson, Huey D. editor. *No Deposit—No Return: Man & His Environment, A View Toward Survival.* 1970. Addison-Wesley Co., Inc., Reading, Mass. ($4.95 paper). An edited anthology of papers presented at the 13th National Conference for UNESCO.

Krutch, Joseph Wood. *The Measure of Man.* 1954. Grosset & Dunlap, Inc., New York ($1.95 paper). An appraisal of the unique quality of man and his interaction with his environment.

Love, Sam. editor. *Earth Tool Kit: A Field Manual for Environmental Action.* 1971. Pocket Books, New York ($1.25). Prepared by the organizers of Earth Day, a presentation of grass roots community action to combat the degradation of the environment.

McHarg, Ian L. *Design With Nature.* Published for the American Museum of Natural History Press, New York ($19.95; paper $5.95). A re-

capitulation of the pollution and destruction that has gone on and of what must be done to create a balances and self-renewing environment.

McPhee, John. *Encounters With the Archdruid.* 1971. Farrar, Straus, Giroux, New York ($6.95). A three-part series reprinted from The New Yorker on David Brower (long the voice of the Sierra Club but now the leader of Friends of the Earth).

Mumford, Lewis. *The Myth of the Machine: The Pentagon of Power.* 1970. Harcourt, Brace & World, Inc., New York ($12.95). A persuasive argument that man can direct the environment within which he lives and shape technological change to his and society's advantage, rather than endure the consequences of unbridled growth.

Nader, Ralph. introduction by. *Water Wasteland.* Zwick, David & Benstock, Marcy. 1971. Grossman Publishers, New York ($7.95). Nader Task Force Report on Water Pollution.

Nash, Roderick. *The American Environment: Readings in the History of Conservation.* 1968. Addison-Wesley Publishing Co., Reading, Mass. ($2.95 paper). A collection of 36 essays (1832 to 1967) providing a historical perspective on conservation and its changing concepts.

National Geographic Society. *As We Live and Breathe: The Challenge of Our Environment.* 1971. National Geographic Society, Washington, D.C. ($4.25 plus 40¢ postage). Explores the reticulated web of life that sustains man, assesses the ecological damage that society has created, and, presents the programs, technological and individual, that are applicable now to reverse the trend toward environmental disaster.

National Wildlife Federation. *Conservation Directory, 1971,* Washington, D.C. ($1.50). A directory of organizations, agencies and individuals (private and public) concerned with natural resource use and management and the preservation of wildlife.

Nicholson, M. *The Environmental Revolution.* 1970. McGraw-Hill Co., New York ($10). A scientific approach to the vast ecological changes that have occurred in recent years.

Ottinger, Berry Ann. *What Every Woman Should Know—And Do—About Pollution.* 1970. EP Press, New York ($1.95). An examination of the "mess" society has created in the global household with practical suggestions on how to reverse environmental degradation.

President's Council on Recreation and Natural Beauty. *From Sea to Shining Sea: A Report on the American Environment—Our Natural Heri-*

tage. 1968. U.S. Government Printing Office, Washington, D.C. ($2.50). Case histories on the American environment which examine the past, the present and the possible future environment of the Nation.

Revelle, Roger and Hans Landsberg—editors. *America's Changing Environment*. 1970. Houghton Mifflin Co., New York ($6.95). A collection of 19 papers which explores the causes, dimensions and possible solutions for the distortions in today's environment.

Saltonstall, Richard, Jr. *Your Environment and What You Can Do About It*. 1970. Walker & Co., New York ($6.95). A review of environmental problems with guidelines for citizens action programs.

Sanders, Howard and Josephs, Melvin. *Chemistry and the Environment*. 1967. American Chemical Society, Washington, D.C. ($5.00). An assessment of the environment from the perspective of chemistry's contribution to understanding the solid earth, the oceans, the atmosphere.

Sax, Joseph L. Introduction by Senator George McGovern. *Defending the Environment*. 1971. Alfred A. Knopf, Inc., New York ($6.95). Discusses how to take environmental controversies into court, use of established procedures and the creative application of basic legal principles.

Scientific American. *The Biosphere*. 1970. W. H. Freeman & Co., San Francisco, Calif. Volume 223, #3, September 1970 ($1). This is the full text and the original illustrations from Scientific American's annual single issue.

Scientific American. *Man and the Ecosphere*. 1971. W. H. Freeman & Co., San Francisco, Calif. ($5.75). A collection that analyses the state of the ecosphere and its interaction with man.

Shephard, Paul. editor. *The Subversive Science: Essays Toward on Ecology of Man*. 1969. Houghton Mifflin Co., Boston ($5.95). A broad perspective on man and his relation to his environment by a group of noted scientists.

Wilson, Carroll L. *Man's Impact on the Global Environment: Assessment & Recommendation for Action*. 1971. The MIT Press, Cambridge, Mass. ($3). A report from a conference of distinguished scientists who examined the status of governmental and nongovernmental preparations for the 1972 U.N. Conference on the Human Environment.

Wilson, Thomas W., Jr. *International Environmental Action: A Global Survey*. 1971. Dunellen, Inc., New York ($12.50). An assessment of worldwide response to the environmental crisis from political, social, economic, and legal aspects.